

Predicting future suitable environment for South East Madagascar endemic species for an effective protected network

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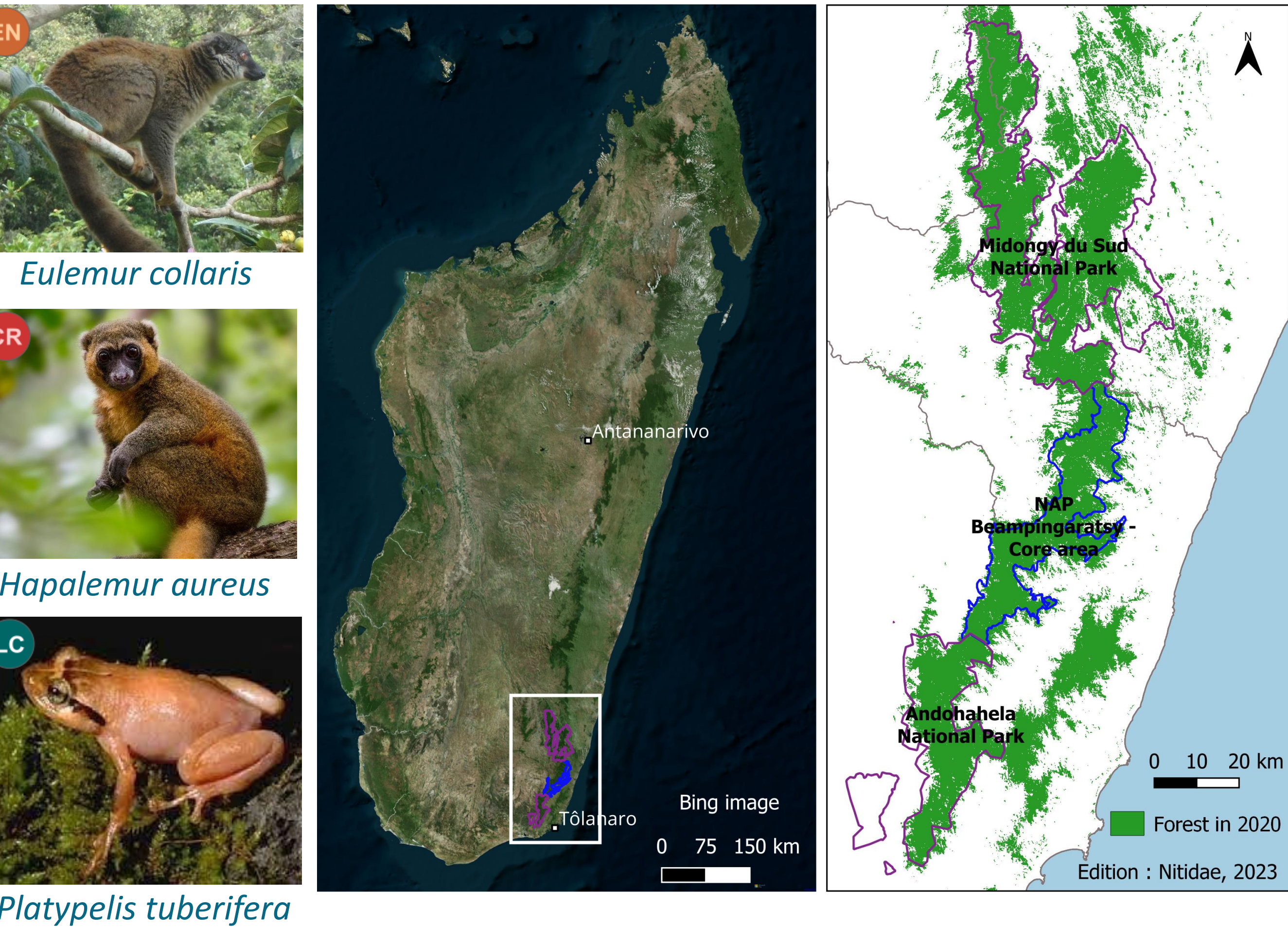
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Context

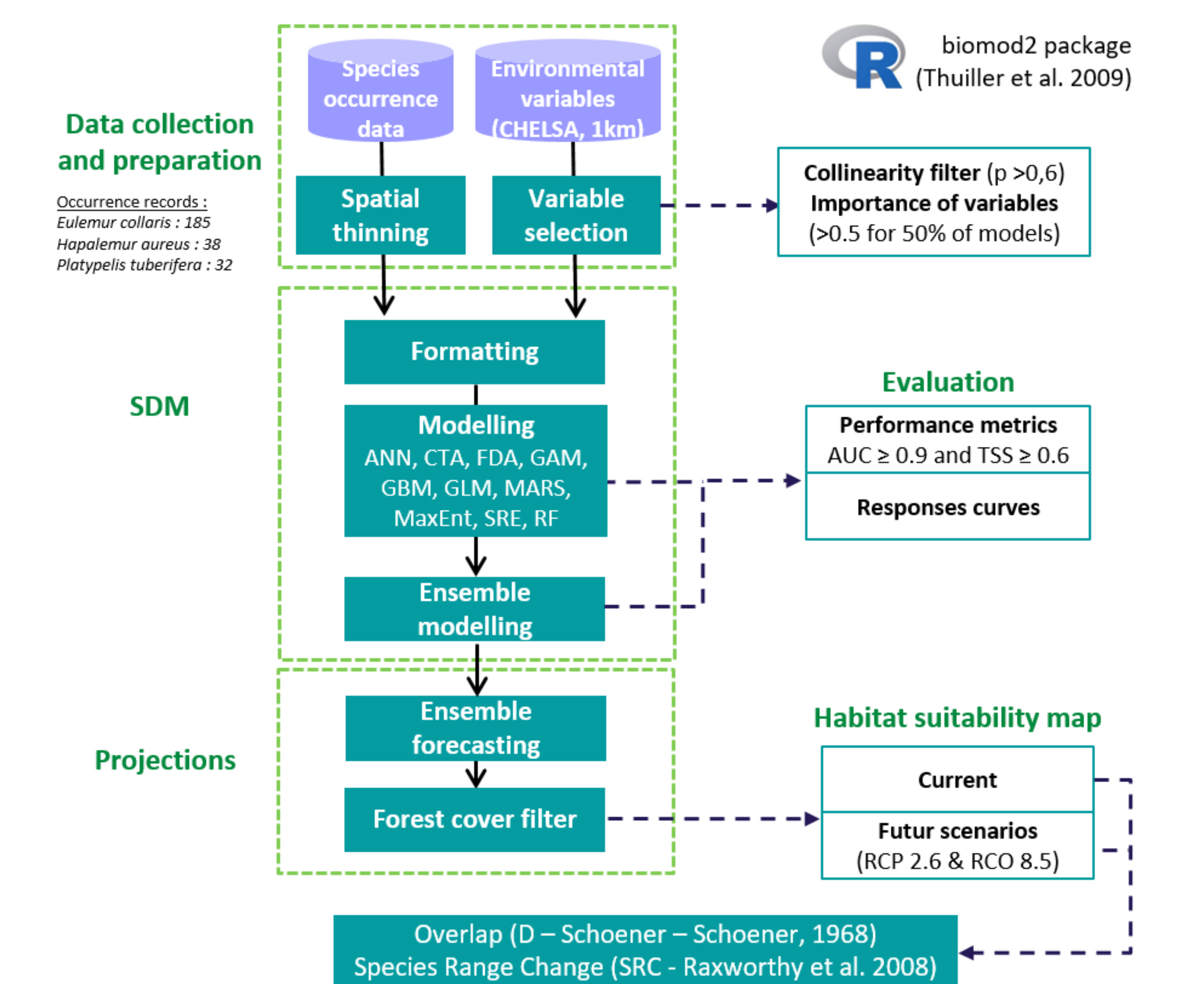
Climate change is expected to cause shifts in species distributions worldwide, which should move towards higher elevations and latitudes as climate warms. In the South-East of Madagascar the rainforest belt is actually facing multiples threats such as deforestation due to subsistence agriculture and might be particularly vulnerable to climate changes. These blended threats for many taxa are making the identification of optimal habitat for the future a conservation priority. Between the National Parks of South Midongy and Andohahela, the Beampingaratsy massif acts as a forest corridor.



Objectives

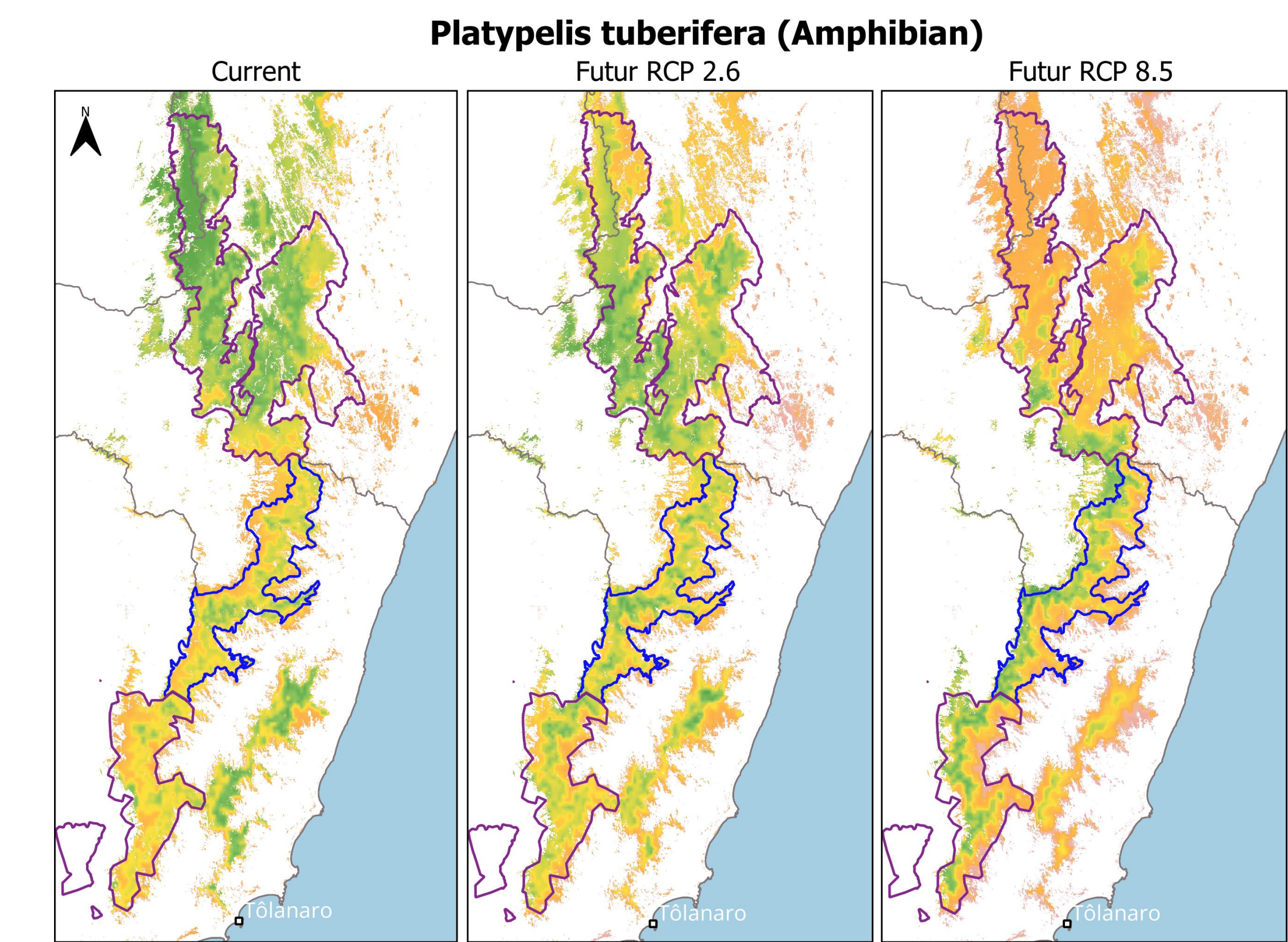
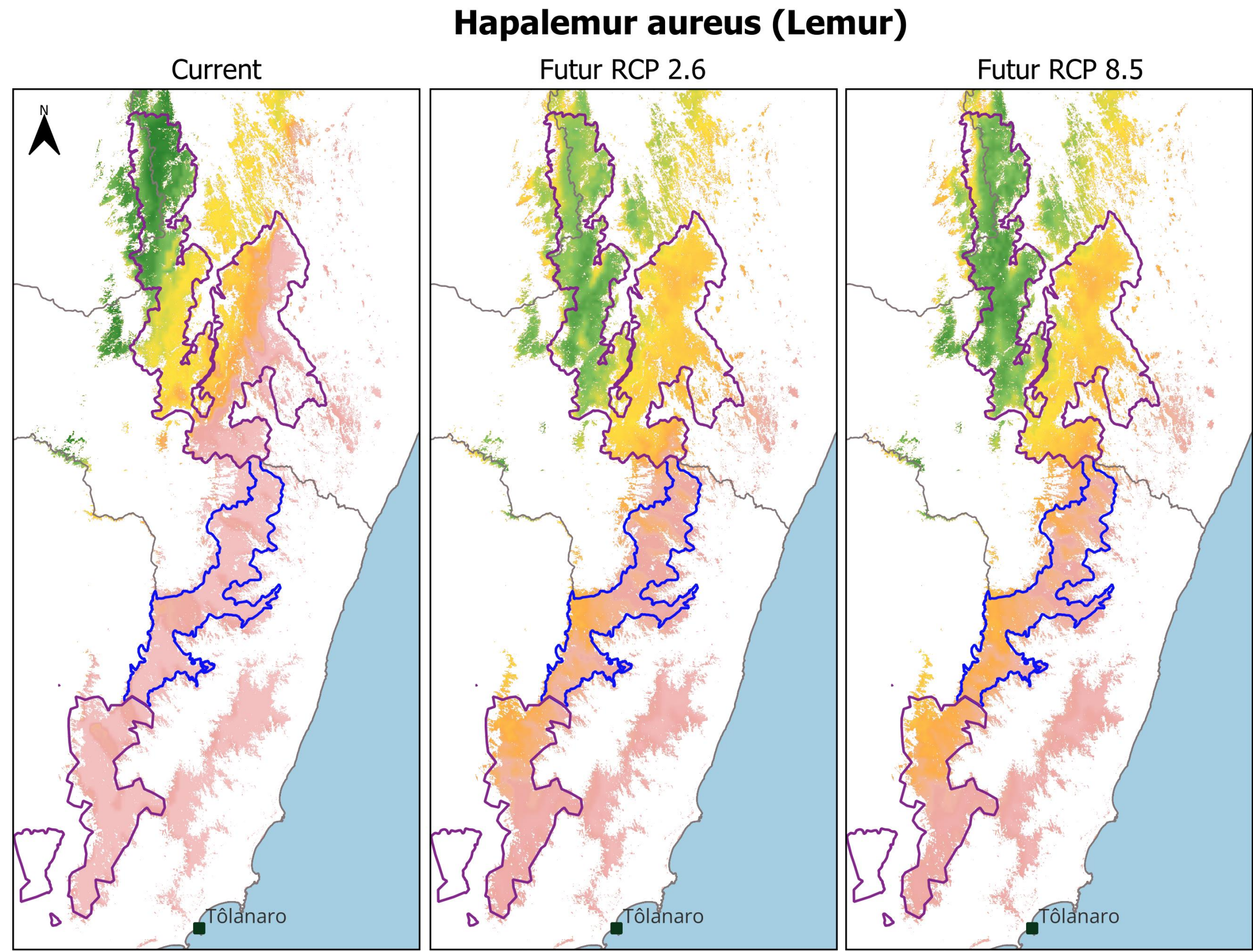
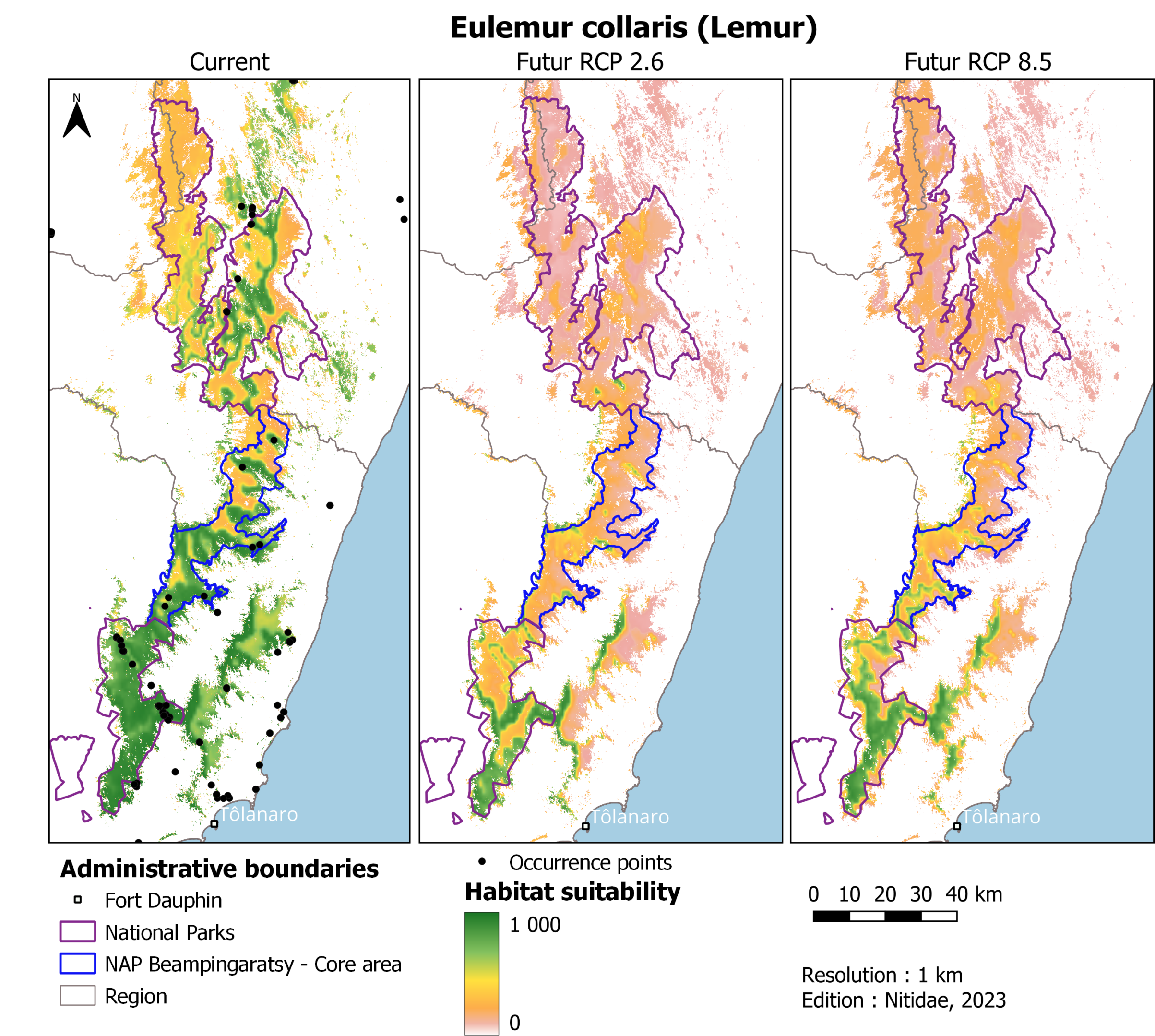
Assessed the efficiency of implementing conservation measures in this area for two distinct vocations: 1) as an **ecological corridor** for two species located in the area, *Eulemur collaris* (Lemur) and *Platyplepis tuberifera* (Amphibian) 2) as an **ecological haven** for one lemur species whose range are exclusively north of the area, *Hapalemur aureus*.

Material and Methods



Results

- Current and projected future habitat for *Platyplepis tuberifera*, *Eulemur collaris* and *Daubentonia madagascariensis* using the Chelsa baseline climate



- D - Schoener's similarity index (overlap)*: (0) niches are totally different - (1) niches are totally similar and SRC (Species Range Change) : percentage of pixels predicted to change (loss or gain) compare to the number of pixels currently occupied (habitat suitability > 500)

| Species | Overlap | | SRC | |
|-------------------------------|------------------------|------------------------|------------------------|------------------------|
| | Current – Futur RCP2.6 | Current – Futur RCP8.5 | Current – Futur RCP2.6 | Current – Futur RCP8.5 |
| <i>Eulemur collaris</i> | 0.71 | 0.72 | -81.3 | -78.1 |
| <i>Hapalemur aureus</i> | 0.79 | 0.79 | 57.0 | 61.8 |
| <i>Platyplepis tuberifera</i> | 0.88 | 0.75 | -18.6 | -65.6 |

Conclusion

Species were predicted to shift southward and towards higher altitude forest areas. The species currently located in the area are projected to lose their current range inside the area. *Eulemur collaris* and *Platyplepis tuberifera* were projected to lose 78% and 66% of their current climate range suitability for the RCP 8.5. The climate range of the area is currently not suitable for the species located at the north of the area but climatic conditions in the area are expected to become favourable for *Hapalemur aureus* (+ 62% for the RCP 8.5). This study provides new arguments for the conservation of the corridor, in a poorly studied area and with species showing low sample size.